

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Appl. No. : 10/027,160  
Applicant(s) : Kurt Estes, et al.  
Filed : December 20, 2001  
T.C./A.U. : 1751  
Examiner : Gregory E. Webb  
Docket No. : 9793070-0439 (094342.0038)

I hereby certify that this correspondence is being mailed to the U. S. Patent and Trademark Office, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below.

Name : Eileen T. Mathews

Signature: 

Date : May 29, 2007

**Declaration Under 37 CFR 1.131**

Sir:

I the named co-inventor hereby declare as follows:

1. I am a named co-inventor of the subject matter that is claimed and for which a patent is sought on the invention as above mentioned. This application was filed on December 20, 2001. This application is a divisional of application serial no. 09/520,653, filed on March 7, 2000, which is a divisional of 09/038,054, filed on March 11, 1998, which claim the benefit of the earlier filing date of provisional patent application 60/045,072 filed on April 29, 1997. I have reviewed the subject matter of provisional application 60/045,072 and can attest that the subject matter of the Applicants' independent claims are supported by the application. As such, the pending application serial no. 10/027,160 has an earliest effective filing date of April 29, 1997.

2. In the Office Action dated January 26, 2007, the United States Patent and Trademark Office (USPTO) rejected claims 79-81 and 83-87 under section 103(a) as being unpatentable over by Flynn et al., US Patent No. 5,962,390, filed on May 17, 1996 and issued on October 5, 1999, which is a continuation-in-part of application serial no. 08/573,416 filed on December 15, 1995, and which claims the benefit of application no. 08/375,812, filed on January 20, 1995, now abandoned, (hereinafter "Flynn et al."), and in view of each of the secondary references, Smith, et al. (US 5,238,587), Mizutani, et al. (US 4,102,824) and Broze, et al. (US 4,786,431).

3. Claims 79-81 and 83-87 of Application Serial No. 10/027,160 which have a priority date of April 29, 1997 are not obvious over Flynn et al., in view of the secondary references.

4. Per applicable U.S. patent law, Flynn et al. 5,962,390 has an effective 102(e) date of May 17, 1996 (the filing date).

5. This written document is an affidavit of prior invention to overcome the cited patent of Flynn et al. 5,962,390. I, an Inventor of the subject matter of the rejected claims, hereby submit this oath to overcome this reference. I performed certain acts described below.

**I. Showing of Facts Through Document Evidence**

6. Below are facts that show a conception of the invention on or before the May 17, 1996 filing date of Flynn et al. 5,962,390 coupled with due diligence from such conception to a subsequent actual reduction to practice or to the provisional application filing date of 29 April 1997.

7. **Exhibit A** is a slide show summary created and dated before May 17, 1996. I prepared this slide show in preparation for a presentation to Whirlpool, our employer and the assignee of the application. **Exhibit B** is a document entitled, "Non Aqueous Fluid Assessment" which sets up testing protocols using non-aqueous working fluids. This document too was generated prior to May 17, 1996.

**A. Facts establishing conception**

8. In general, the facts of Exhibits A and B are hereby incorporated by reference. Moreover, I present the following facts to establish a conception of the invention on or before the May 17, 1996 Flynn et al. filing date.

**(i) Conception**

9. The basic inventive concept of the application is the fluid composition used in non-aqueous laundering.

10. The USPTO presented Flynn et al. as teaching a variety of solvents suitable for dry cleaning applications which also meets the limitations of the properties required of Applicants' working fluid. However, as explained in the contemporaneously filed Response to Final Office Action dated January 26, 2007, Flynn et al. does not disclose a working fluid composition having a fragrance as claimed and Flynn et al. does not serve as a basis in an obviousness rejection.

11. The details of Exhibit A support conception of the claimed invention. Thus, the scope of this affidavit is commensurate with the scope of the claimed subject matter. Particularly, Exhibit A shows that "Project Hope" concerns working fluid chemistries. Some of the exemplary working fluids include Flourinert and possess the properties of being an ideal working fluid. The next slide shows Project Hope and the various characteristics of an exemplary non aqueous working fluid. The next slide shows that hundreds of compounds were selected for further testing and that several were currently being bench tested. (See Exhibit B for some testing protocols).

(ii) **Effective date of Flynn et al.**

12. As indicated on the face of the Flynn et al. patent, issued on October 5, 1999, and has a section 102(e) date (filing date) of May 17, 1996. Accordingly, the date to overcome is May 17, 1996.

(iii) **On or before the effective date of Flynn et al.**

13. I allege that the acts relied upon to establish the date on or before May 17, 1996. The testing and the exhibits attached were generated prior to the effective date of Flynn et al.

**B. Facts establishing reduction to practice**

14. In general, the facts of Exhibits A and B are hereby incorporated by reference. Moreover, I present the following facts to establish a reduction to practice.

(i) **Actual reduction to practice**

15. After conception of the invention on or before May 17, 1996, I tested or had the invention tested to establish its capacity to successfully perform its intended purpose. Exhibit B represents an invention testing protocol/assessment that discusses the experiments that would be run during a period starting before May 17, 1996 and into later parts of 1996.

16. Exhibit A shows a slide show summary generated and dated prior to May 17, 1996 that shows that of the many chemicals that exhibited some of the desired characteristics, several were chosen as candidates. Several were benchtop tested.

(ii) **Constructive reduction to practice**

17. I allege that the present application for a U.S. patent recites independent claims of the same invention disclosed in the provisional application filed on April 29, 1997.

18. Therefore, constructive reduction to practice was achieved on April 29, 1997.

**C. Facts establishing reasonable diligence**

19. I present the following facts to establish that there was reasonable diligence from on or before the May 17, 1996 effective date of Flynn et al. to the actual reduction to practice of Exhibits A or B or alternatively to the provisional filing date.

21. As noted above, conception occurred on or before the May 17, 1996 filing date of Flynn et al. Moreover, actual reduction to practice occurred on or before April 29, 1997. I assert that there was reasonable diligence from conception to reduction to practice, either actual or constructive. Exhibits A and B indicate that several exemplary working fluids were selected as having desirable characteristics and these chemicals were submitted for further bench

testing. As Exhibit A shows, I was cognizant of the need to pursue patent applications to protect the invention. The inventors timely filed a provisional patent application on April 29, 1997. The selection of chemicals, the experiments, and the actual filing of a patent application indicate a reasonable diligence period from on or before the Flynn et al. 5,962,390 filing date.

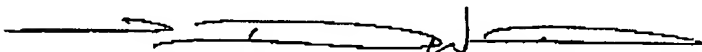
22. Alternatively, the time period taken for the completion of the application constitutes reasonable diligence. During this time period, I and/or our representative worked reasonably hard and expeditiously to prepare, execute and file a patent application in the United States Patent Office. Accordingly, there was reasonable diligence from on or before the Flynn et al. 5,962,390 filing date to the filing of the application of the present invention.

## **II. Allegations and other Statements**

23. I allege that the acts relied upon to establish the date on or before Flynn et al. 5,962,390 were carried out in the United States.

## **III. Signatures and Declaration in Lieu of Oath Under 37 CFR 1.68**

24. I hereby declare that the statements made of my own knowledge are true and that all statements made on information and belief are believed to be true. I acknowledge that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. 1001) and may jeopardize the validity of the application or patent issuing thereon.



Tremitchell Wright

4/26/07  
Date

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## Exhibit A



# Non-Aqueous Wash System Development CTD Laundry 1996 Project

Whitpool Confidential



*CTD Laundry*  
*Non-Aqueous Projects*

^ Inert Working Fluids  
- Project Hope 1996



## *Alternative Technologies Project Hope*

### ★ Define the Ideal Inert Working Fluid

- Low/ No Pressure System

### ★ Conduct Technology Assessments of Non-Aqueous Fluids

- Fluorinert (3M)
- Hydrocarbon Compounds
- HANVULRT (DOW)
- Rynex (Perc Replacement)

### ★ Develop Whirlpool Strategy and Portfolio

Whirlpool Confidential





## *Project Hope Flourent*

- ★ Produced by 3M
- ★ Used for Electronic Component Cooling
- ★ Initially Waste Stream Product
- ★ Current Cost ~ \$400/gallon
- ★ Inert Fluid (Non-Reactive)
- ★ Extremely Low Surface Tension (~15 dynes/cm)
- ★ Low Vapor Pressure (~0.1mm Hg) (Fast Drying)
- ★ No Detergent Properties (Cleaning)
- ★ Potential Transport Medium
- ★ Non-Volatile (Surface Residue Control)

## *Project Hope Ideal Fluid*

- ★ Searching for:
  - Non-Flammable
  - Non-Toxic
  - Environmentally Compatible
- ★ Reviewed 58,000 Compounds/18 Classes to Date
- ★ Currently, 293 Compounds Remain for Second Level Screening
- ★ Currently, detailed screening of 10 compounds in progress (Benchmark Testing)
- ★ Using Chemistry Assessment to Define Ideal Working Fluid for IP Portfolio and Next Steps

Workshop Confidential

## Exhibit B

## **Non-Aqueous Fluid Assessment**

### **1. Chemical Properties Evaluation**

- \* Surface tension
- \* Solubilities ( Water, Oil, Surfactants )
- \* Stabilities

### **2. Deterasive Evaluation**

- \* Particulate removal
- \* Oily removal
- \* Stains

### **3. Fabric Care Evaluations**

- \* Shrinkage
- \* Tensile strength
- \* Dye loss or mobility

### **4. Material Compatibility**

- \* Plastics
- \* Stainless steel
- \* Rubber

### **5. Safety Assessment**

### **6. Environmental Assessment**

1. Chemical Properties Evaluation

Surface Tension:

Place 50 ml sample into the tensiometer vessel  
Temperature of sample 70F (21C) remain constant  
Take three samples

Solubilities:

Place a 50 ml sample into a 500 ml flask  
Place a stir bar into flask  
Maintain a constant temperature of 70F (21 C)  
Add the desired solute in 1 ml increments  
Record amount of solute which solubilizes into solution

Stabilities: (In Fume Hood w/ Glass Down)

Add 10 ml sample to a 100 ml flask  
Place stir bar into flask  
Constant temperature of 70 F (21C)  
Add desired solute ( ie. Bleach, Hydrogen Peroxide, etc.)  
Observe and record stability

## 2. Detergent Evaluation

### Particulate removal

Add 500 ml of fluid to Non-Aqueous setup  
Place 3 AS-9, PC-9 swatches in the container  
Agitate for 5 min @ 100 spm  
Temperature maintained at 70 F (21C)  
Remove swatches and hang dry in Fume hood  
Read swatches on colorimeter

### Oily soil removal

Add 500 ml of fluid to Non-Aqueous setup  
Place 3 oily soil swatches in to container  
Agitate for 5 min @ 100 spm  
Temperature maintained at 70F (21C)  
Remove swatches and hang dry in Fume hood  
Read swatches on colorimeter  
Perform soxlet extraction to determine oily soil remaining

### Stain removal

Add 500 ml of fluid to Non-Aqueous setup  
Place selected stain swatches into container  
Agitate for 5 min @ 100 spm  
Temperature maintained at 70 F (21C)  
Remove swatches and hang dry in Fume hood  
Read swatches on colorimeter

### 3. Fabric Care Evaluation

#### Dimensional Stability

Measure length and width of swatch and record  
Place 250 ml of selected fluid into container  
Add selected fabric swatches to fluid (ie. Cotton, Wool, Silk, Polyester, & Blends)  
Let swatches soak for 5 minutes  
Remove swatches and dry flat  
After dry, Measure and record

#### Tensile strength

Measure the tensile strength of material  
Place 500 ml of selected fluid into container  
Add selected fabric swatches to fluid (ie. Cotton, Wool, Silk, Polyester, & Blends)  
Agitate swatches for 5 min @ 100 spm  
Remove swatches and dry flat in fume hood  
Repeat above four times (total of five trials)  
Measure tensile strength, if no change repeat for 10, 15, 20, 25 trials.

#### Dye Loss and Mobility

Read white receivers on colorimeter  
Place 500 ml of fluid into Non-Aqueous setup  
Add a red and blue dye swatch plus two receivers  
Agitate for 5 min @ 100 spm  
Remove swatches and hang dry in Fume hood  
Read white receivers on colorimeter

4. Material Compatibility

Plastic Compatibility

Cut a 2" X 2" piece of selected plastic  
Weigh plastic sample and record  
Place in a 500 ml beaker  
Add sufficient amount of selected fluid to immerse plastic  
Cover beaker  
Weigh the plastic sample each day for the first ten days  
Record the weight  
Record and additional observations (ie. discoloration, thinning, cracking, etc)

Stainless Steel Compatibility

Cut a 1" X 1" piece of stainless steel  
Weigh sample of stainless steel and record  
Place in a 500 ml beaker  
Add sufficient amount of selected fluid to immerse steel  
Cover beaker  
Weigh the stainless steel sample each day for the first ten days  
Record the weight  
Record and additional observations (ie. discoloration, thinning, cracking, etc)

Rubber Compatibility

Cut a 2" X 2" piece of selected rubber sample  
Weigh the rubber sample and record  
Place in 500 ml beaker  
Add sufficient amount of selected fluid to immerse rubber  
Cover beaker  
Weigh the rubber sample each day for the first ten days  
Record weight and additional observations



5. Environmental Assessment:

6. Safety Assessment: